

# **CORROSION SCIENCE**

**TITLE SECTION, LIST OF CONTENTS, SUBJECT INDEX AND AUTHOR INDEX  
VOLUME 43, 2001**



**PERGAMON**

# CORROSION SCIENCE

*An International Journal of the Science and Practice of Corrosion and Protection published under the auspices of the Institute of Corrosion and Centre Belge d'Etude de la Corrosion (CEBELCOR).*

This journal publishes original papers and critical reviews in the fields of pure and applied corrosion, the degradation of materials, and both surface science and engineering. It forms an important link between metallurgists, materials scientists and all investigators of corrosion and degradation phenomena.

## EDITOR-IN-CHIEF

Dr G. T. BURSTEIN, Department of Materials Science and Metallurgy, University of Cambridge, Pembroke Street, Cambridge CB2 3QZ, U.K.  
e-mail: [corros.sci@msm.cam.ac.uk](mailto:corros.sci@msm.cam.ac.uk)

## EDITORIAL BOARD

Prof. CHU-NAN CAO, Corrosion Science Laboratory, Institute of Corrosion and Protection of Metals, Academia Sinica, 62 Wencui Road, Shenyang, China.

Dr J. R. GALVELE, Departamento Materiales, Comision Nacional de Energia Atomica, Avda. Libertador 8250, 1429-Buenos Aires, Argentina.

Prof. H.-J. GRABKE, Max-Planck-Institut für Eisenforschung GMBH, 4 Düsseldorf, Max-Planck-Strasse 1, Germany.

Prof. K. HASHIMOTO, Tohoku Institute of Technology, Sendai 982-8588, Japan.

Dr P. MARCUS, Laboratoire de Physico-Chimie des Surfaces, École Nationale Supérieure de Chimie de Paris, Université Pierre et Marie Curie, 11, Rue Pierre et Marie Curie, 75231 Paris Cedex, France.

Prof. H. W. PICKERING, Department of Materials Science and Engineering, Pennsylvania State University, University Park, PA 16802, U.S.A.

Dr J. C. SCULLY, School of Materials, Houldsworth School of Applied Science, University of Leeds, Leeds LS2 9JT, U.K.

Prof. W. H. SMYRL, Corrosion Research Center, Department of Chemical Engineering and Materials Science, University of Minnesota, 112 Amundson Hall, 221 Church Street S.E., Minneapolis, MN 55455, U.S.A.

Prof. F. H. STOTT, Corrosion and Protection Centre, University of Manchester Institute of Science and Technology, P.O. Box 88, Manchester M60 1QD, U.K.

Prof. Z. SZKLARSKA-SMIALOWSKA, Department of Materials Science and Engineering, The Ohio State University, 116 West 19th Avenue, Columbus, OH 43210, U.S.A.

Prof. G. E. THOMPSON, Corrosion and Protection Centre, University of Manchester Institute of Science and Technology, P.O. Box 88, Manchester M60 1QD, U.K.

**Publication information:** *Corrosion Science* (ISSN 0010-938X). For 2001, volume 43 is scheduled for publication. Subscription prices are available upon request from the Publisher or from the Regional Sales Office nearest you or from this journal's website (<http://www.elsevier.com/locate/corsci>). Further information is available on this journal and other Elsevier Science products through Elsevier's website (<http://www.elsevier.com>). Subscriptions are accepted on a prepaid basis only and are entered on a calendar year basis. Issues are sent by standard mail (surface within Europe, air delivery outside Europe). Priority rates are available upon request. Claims for missing issues should be made within six months of the date of dispatch.

**Orders, claims, and product enquiries:** please contact the Customer Support Department at the Regional Sales Office nearest you:

**New York:** Elsevier Science, PO Box 945, New York, NY 10159-0945, USA; phone: (+1) (212) 633 3730 [toll free number for North American customers: 1-888-4ES-INFO (437-4636)]; fax: (+1) (212) 633 3680; e-mail: [usinfo-f@elsevier.com](mailto:usinfo-f@elsevier.com). **Amsterdam:** Elsevier Science, PO Box 211, 1000 AE Amsterdam, The Netherlands; phone: (+31) 20 4853757; fax: (+31) 20 4853432; e-mail: [nlinfo-f@elsevier.nl](mailto:nlinfo-f@elsevier.nl). **Tokyo:** Elsevier Science, 9-15 Higashi-Azabu 1-chome, Minato-ku, Tokyo 106-0044, Japan; phone: (+81) (3) 5561 5033; fax: (+81) (3) 5561 5047; e-mail: [info@elsevier.co.jp](mailto:info@elsevier.co.jp). **Singapore:** Elsevier Science, No. 1 Temasek Avenue, 17-01 Millenia Tower, Singapore 039192; phone: (+65) 434 3727; fax: (+65) 337 2230; e-mail: [asiainfo@elsevier.com.sg](mailto:asiainfo@elsevier.com.sg). **Rio de Janeiro:** Elsevier Science, Rua Sete de Setembro 111/16 Andar, 20050-002 Centro, Rio de Janeiro - RJ, Brazil; phone: (+55) (21) 509 5340; fax: (+55) (21) 507 1991; e-mail: [elsevier@campus.com.br](mailto:elsevier@campus.com.br) [note (Latin America): for orders, claims and help desk information, please contact the Regional Sales Office in New York as listed above].

Periodicals postage paid at Rahway, New Jersey. *Corrosion Science* (ISSN 0010-938X) is published (monthly) by Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK. The annual subscription in the USA is \$2474.

*Corrosion Science* is circulated by Mercury International Limited, 365 Blair Road, Avenel, NJ 07001, USA.

**POSTMASTER:** Please send address corrections to: *Corrosion Science*, c/o Customer Services, Elsevier Science Inc., 655 Avenue of the Americas, New York, NY 10010, USA.

**Back Issues:** Back issues of all previously published volumes, in hard copy and on microform, are available direct from Elsevier Science Offices.

## CONTENTS

### NUMBER 1

M. EDWARDS and N. SPRAGUE

M. EL ACHOURI, M. R. INFANTE, F. IZQUIERDO, S. KERTIT, H. M. GOUTTAYA and B. NCIRI

M. VANKEERBERGHEN, S. GAVRILOV and G. NELISSEN

Y. S. LIM, J. S. KIM, S. J. AHN, H. S. KWON and Y. KATADA

S. F. L. MERTENS and E. TEMMERMAN

X. ZHANG, S. LO RUSSO, S. ZANDOLIN, A. MIOTELLO, E. CATTARUZZA, P. L. BONORA and L. BENEDETTI

D. G. KOLMAN

W. HE, I. ODNEVALL WALLINDER and C. LEYGRAF

T. VÄLAND, T. BURCHARDT and S. F. VAN DER MEER

M. A. ARENAS, M. BETHENCOURT, F. J. BOTANA, J. DE DAMBORENEA and M. MARCOS

H. KATAGIRI, S. MEGURO, M. YAMASAKI, H. HABAZAKI, T. SATO, A. KAWASHIMA, K. ASAMI and K. HASHIMOTO

H. KATAGIRI, S. MEGURO, M. YAMASAKI, H. HABAZAKI, T. SATO, A. KAWASHIMA, K. ASAMI and K. HASHIMOTO

**Discussions**

A. TURNBULL

G. R. ENGELHARDT, D. D. MACDONALD and M. URQUIDI-MACDONALD

K. SHIMIZU, G. M. BROWN, H. HABAZAKI, K. KOBAYASHI, P. SKELDON, G. E. THOMPSON and G. C. WOOD

1      Organic matter and copper corrosion by-product release: a mechanistic study

19     Synthesis of some cationic gemini surfactants and their inhibitive effect on iron corrosion in hydrochloric acid medium

37     Finite element calculation of the polarisation behaviour of a metal in an aqueous solution using the dilute solution model

53     The influences of microstructure and nitrogen alloying on pitting corrosion of type 316L and 20 wt.% Mn-substituted type 316L stainless steels

69     Dimensional changes during corrosion of polymer-coated metals

85     The pitting behavior of Al-3103 implanted with molybdenum

99     A review of the potential environmentally assisted failure mechanisms of austenitic stainless steel storage containers housing stabilized radioactive compounds

127    A laboratory study of copper and zinc runoff during first flush and steady-state conditions

147    The hydrogen evolution and corrosion of amorphous  $FeS_x$  films

157    Inhibition of 5083 aluminium alloy and galvanised steel by lanthanide salts

171    Synergistic effect of three corrosion-resistant elements on corrosion resistance in concentrated hydrochloric acid

183    An attempt at preparation of corrosion-resistant bulk amorphous Ni-Cr-Ta-Mo-P-B alloys

193    Discussion on "Development of fast algorithms for estimating stress corrosion crack growth rate" by G.R. Engelhardt, D.D. Macdonald and M. Urquidi-Macdonald [*Corrosion Science* 41 (12) (1999) 2267]

195    Response to Dr. A. Turnbull's discussion on "Development of fast algorithms for estimating stress corrosion crack growth rate" [*Corrosion Science* 41 (12) (1999) 2267]

I      Corrosion diary

III     Keywords for *Corrosion Science*

**NUMBER 2**

199    Glow discharge optical emission spectroscopy – a powerful tool for the study of compositional non-uniformity in electrodeposited films

W. FÜRBETH and M. STRATMANN	207	The delamination of polymeric coatings from electrogalvanised steel – a mechanistic approach. Part 1: delamination from a defect with intact zinc layer
W. FÜRBETH and M. STRATMANN	229	The delamination of polymeric coatings from electrogalvanized steel – a mechanistic approach. Part 2: delamination from a defect down to steel
W. FÜRBETH and M. STRATMANN	243	The delamination of polymeric coatings from electrogalvanized steel – a mechanistic approach. Part 3: Delamination kinetics and influence of $\text{CO}_2$
K. L. WANG, Q. B. ZHANG, M. L. SUN, X. G. WEI and Y. M. ZHU	255	Microstructure and corrosion resistance of laser clad coatings with rare earth elements
J. M. BASTIDAS, J. L. POLO, C. L. TORRES and E. CANO	269	A study on the stability of AISI 316L stainless steel pitting corrosion through its transfer function
R. HAUGSRUD, T. NORBY and P. KOFSTAD	283	High-temperature oxidation of Cu–30 wt.% Ni–15 wt.% Fe
S. F. L. MERTENS and E. TEMMERMAN	301	Study of zinc passivation in chromium(VI)-containing electrolytes with short-term impedance measurements
Z. QINGDONG	317	Potential variation of a temporarily protective oil coating before its degradation
G. DOMIZZI, G. ANTERI and J. OVEJERO-GARCIA	325	Influence of sulphur content and inclusion distribution on the hydrogen induced blister cracking in pressure vessel and pipeline steels
F. MANSFIELD, Z. SUN, C. H. HSU and A. NAGIUB	341	Concerning trend removal in electrochemical noise measurements
S.-I. PYUN and W.-J. LEE	353	The effect of prior $\text{Cl}^-$ ion incorporation into native oxide film on pure aluminium in neutral chloride solution on pit initiation
M. HERRANEN and J.-O. CARLSSON	365	An electrochemical quartz crystal microbalance and in situ SFM study of Ti in sulphuric acid
K. MIZUNO, A. NYLUND and I. OLEFJORD	381	Surface reactions during pickling of an aluminium–magnesium–silicon alloy in phosphoric acid
I		Corrosion diary
III		Keywords for <i>Corrosion Science</i>

**NUMBER 3**

G. YANG, L. YING and L. HAICHAO	397	Experimental studies on the local corrosion of low alloy steels in 3.5% NaCl
S. CHANEL and N. PÉBERE	413	An investigation on the corrosion of brass-coated steel cords for tyres by electrochemical techniques
T. KAMIMURA and M. STRATMANN	429	The influence of chromium on the atmospheric corrosion of steel
K. HABIB	449	In situ measurement of oxide film growth on aluminium samples by holographic interferometry
R. S. GONÇALVES and L. D. MELLO	457	Electrochemical investigation of ascorbic acid adsorption on low-carbon steel in 0.50 M $\text{Na}_2\text{SO}_4$ solutions
G. BARIL and N. PÉBERE	471	The corrosion of pure magnesium in aerated and deaerated sodium sulphate solutions
G. O. ILEVBARA and G. T. BURSTEIN	485	The role of alloyed molybdenum in the inhibition of pitting corrosion in stainless steels
J. J. PERDOMO, M. E. CHABICA and I. SONG	515	Chemical and electrochemical conditions on steel under disbonded coatings: the effect of previously corroded surfaces and wet and dry cycles
K. AZUMI and M. SEO	533	Changes in electrochemical properties of the anodic oxide film formed on titanium during potential sweep
C. FONSECA and M. A. BARBOSA	547	Corrosion behaviour of titanium in biofluids containing $\text{H}_2\text{O}_2$ studied by electrochemical impedance spectroscopy
K.-K. LEE and K.-B. KIM	561	Electrochemical impedance characteristics of pure Al and Al–Sn alloys in NaOH solution
E. VAN DER LINGEN and R. F. SANDENBERGH	577	The cathodic modification behaviour of ruthenium additions to titanium in hydrochloric acid
K. ARAMAKI	591	The inhibition effects of chromate-free, anion inhibitors on corrosion of zinc in aerated 0.5 M NaCl
I		Corrosion diary
III		Keywords for <i>Corrosion Science</i>

## NUMBER 4

**Letter**

G. K. GLASS, R. YANG, T. DICKHAUS 605  
and N. R. BUENFELD

**Papers**

J. A. GONZÁLEZ, A. COBO, 611  
M. N. GONZÁLEZ and S. FELIU  
M. FREGONESE, H. IDRISI, 627  
H. MAZILLE, L. RENAUD and  
Y. CETRE  
H. A. EL SHAYEB, F. M. ABD EL  
WAHAB and S. Z. EL ABEDIN 643  
H. A. EL SHAYEB, F. M. ABD EL  
WAHAB and S. Z. EL ABEDIN 655  
C.-H. XU, W. GAO and S. LI  
A. PARDO, E. OTERO, M. C. MERINO, 689  
M. D. LÓPEZ, M. VÁZQUEZ and  
P. AGUDO  
R. A. PERREN, T. A. SUTER, 707  
P. J. UGGOWITZER, L. WEBER,  
R. MAGDOWSKI, H. BÖHNI and  
M. O. SPEIDEL  
R. A. PERREN, T. SUTER,  
C. SOLENTHALER, G. GULLO,  
P. J. UGGOWITZER, H. BÖHNI and  
M. O. SPEIDEL  
G. LAGUZZI, L. LUVIDI and  
G. BRUNORO  
M. L. MONTOTO, G. S. DUFFÓ and 727  
J. R. GALVELE  
N. LE BOZEC, C. COMPÈRE, M. L'HER, 765  
A. LAOUENAN, D. COSTA and  
P. MARCUS  
C. L. ZENG, W. WANG and W. T. WU 787  
I  
III

On-site determination of corrosion rate in reinforced concrete structures by use of galvanostatic pulses  
Initiation and propagation steps in pitting corrosion of austenitic stainless steels: monitoring by acoustic emission  
Effect of gallium ions on the electrochemical behaviour of Al, Al-Sn, Al-Zn and Al-Zn-Sn alloys in chloride solutions  
Electrochemical behaviour of Al, Al-Sn, Al-Zn and Al-Zn-Sn alloys in chloride solutions containing stannous ions  
Oxidation behaviour of FeAl intermetallics – the effect of Y on the scale spallation resistance  
The influence of Cr addition on the corrosion resistance of  $Fe_{73.5}Si_{13.5}B_9Nb_3Cu_1$  metallic glass in  $SO_2$  contaminated environments  
Corrosion resistance of super duplex stainless steels in chloride ion containing environments: investigations by means of a new microelectrochemical method I. Precipitation-free states  
Corrosion resistance of super duplex stainless steels in chloride ion containing environments: investigations by means of a new microelectrochemical method II. Influence of precipitates  
Atmospheric corrosion of B6 bronze evaluated by the thin layer activation technique  
Effect of  $Ag^+$  ion concentration on the stress corrosion cracking susceptibility of Ag-Cd alloys in  $AgNO_3$  and  $AgClO_4$  aqueous solutions  
Influence of stainless steel surface treatment on the oxygen reduction reaction in seawater  
Electrochemical impedance models for molten salt corrosion  
Corrosion diary  
Keywords for *Corrosion Science*

## NUMBER 5

**Letters**

J.-Y. LEE, S. J. OH, J. G. SOHN and 803  
S.-J. KWON

I. ODNEVALL WALLINDER,  
C. LEYGRAF, C. KARLÉN,  
D. HEIJERICK and C. R. JANSSEN

**Papers**

A. CONDE, I. GARCÍA and J. J. de 817  
DAMBORENEA  
J. MARSH, J. D. SCANTLEBURY and 829  
S. B. LYON  
S. T. AMARAL, E. M. A. MARTINI  
and I. L. MÜLLER  
C. FU, J. ZHENG, J. ZHAO and 853  
W. XU  
E. ROCCA and J. STEINMETZ  
Y. LI, Y. BABA and T. SEKIGUCHI 881  
891  
903

On the correlation between the hyperfine field and the particle size of fine goethite synthesized in chloride solution  
Atmospheric corrosion of zinc-based materials: runoff rates, chemical speciation and ecotoxicity effects  
Pitting corrosion of 304 stainless steel after laser surface melting in argon and nitrogen atmospheres  
The effect of surface/primer treatments on the performance of alkyd coated steel  
An attempt of experimental separation of the potentiodynamic anodic peaks of iron in alkaline solutions and application of the ohmic model for passive film growth  
Application of grey relational analysis for corrosion failure of oil tubes  
Inhibition of lead corrosion with saturated linear aliphatic chain monocarboxylates of sodium  
Study on the oxidation behaviour of Fe, Cr and Ni in  $O_2^+$  ion implanted SUS304 stainless steel by *in situ* SR-XPS and *ex situ* scanning tunnelling microscope

M. GOJIĆ	919	The effect of propargylic alcohol on the corrosion inhibition of low alloy CrMo steel in sulphuric acid
S. SZABÓ and I. BAKOS	931	Rhenium as an accelerator of iron corrosion
S. AFFROSSMAN, J. DAVIOT,	939	Molecular design for inhibition of titanium corrosion in resist cleaner systems
D. HOLMES, R. A. PETHRICK and		
M. WILSON		
M. LAGRENÉE, B. MERNARI,	951	Investigation of the inhibitive effect of substituted oxadiazoles on the corrosion of mild steel in HCl medium
N. CHAIBI, M. TRAISNEL, H. VEZIN		
and F. BENTISS		
W. YANG, Z. LU, D. HUANG,	963	Caustic stress corrosion cracking of nickel-rich, chromium-bearing alloys
D. KONG, G. ZHAO and		
J. CONGLETON		
C. MONTICELLI, A. FRIGNANI,	979	The corrosion behaviour of titanium diboride in neutral chloride solution
A. BELLOSI, G. BRUNORO and		
G. TRABANELLI		
S. MATO, G. E. THOMPSON,	993	Enrichment of alloying elements beneath anodic oxides: investigation of Ta-1.5 at.% Cu alloy
P. SKELDON, K. SHIMIZU,		
H. HABAZAKI and D. MASHEDER		
I Corrosion diary		
III Keywords for <i>Corrosion Science</i>		

**NUMBER 6**

C. A. BARRERO, L. M. OCAMPO	1003	Possible improvements in the action of some rust converters
and C. E. ARROYAVE		
A. V. C. SOBRAL, W. RISTOW JR.,	1019	Potentiodynamic tests and electrochemical impedance spectroscopy of injection molded 316L steel in NaCl solution
D. S. AZAMBUJA, I. COSTA and		
C. V. FRANCO		
A. Y. EL-ETRE	1031	Inhibition of acid corrosion of aluminum using vanillin
N. SIMON, A. TERLAIN and	1041	The compatibility of austenitic materials with liquid Pb-17Li
T. FLAMENT		
L. BURZYŃSKA		
Z. QUAN, S. CHEN and S. LI	1053	Comparison of the spontaneous and anodic processes during dissolution of brass
J. L. GONZÁLEZ-CARRASCO,	1071	Protection of copper corrosion by modification of self-assembled films of Schiff bases with alkanethiol
M. L. ESCUDERO, F. J. MARTÍN,		
M. C. GARCÍA-ALONSO and	1081	Influence of the 475°C hardening of MA 956 on its corrosion behaviour at room temperature
J. CHAO		
Z. SUN, Y. ZHOU and M. LI	1095	Oxidation behaviour of Ti <sub>3</sub> SiC <sub>2</sub> -based ceramic at 900-1300°C in air

G. K. GLASS, A. M. HASSANEIN	1111	Cathodic protection afforded by an intermittent current applied to reinforced concrete
and N. R. BUENFELD		
L. R. M. ESTEVÃO and	1133	Modifications in the volatilization rate of volatile corrosion inhibitors by means of host-guest systems
R. S. V. NASCIMENTO		
B. MÜLLER	1155	Corrosion inhibition of different metal pigments in aqueous alkaline media
S. VIRTANEN, B. SURBER and	1165	Influence of MoO <sub>4</sub> <sup>2-</sup> anion in the electrolyte on passivity breakdown of iron
P. NYLUND		
G. BEREKET and A. YURT	1179	The inhibition effect of amino acids and hydroxy carboxylic acids on pitting corrosion of aluminum alloy 7075
L. WANG, G.-J. YIN and J.-G. YIN	1197	2-Mercaptothiazoline and cetyl pyridinium chloride as inhibitors for the corrosion of a low carbon steel in phosphoric acid
I Corrosion diary		
III Keywords for <i>Corrosion Science</i>		

**NUMBER 7**

R. AKID and D. J. MILLS	1203	A comparison between conventional macroscopic and novel microscopic scanning electrochemical methods to evaluate galvanic corrosion
P. S. LIU, K. M. LIANG and	1217	High-temperature oxidation behavior of aluminide coatings on a new cobalt-base superalloy in air
S. R. GU		

Z. AHMAD, A. UL-HAMID and ABDUL-ALEEM B. J.	1227	The corrosion behavior of scandium alloyed Al 5052 in neutral sodium chloride solution
A. G. MUÑOZ, S. B. SAIDMAN and J. B. BESSONE	1245	Influence of In on the corrosion of Zn-In alloys
D. WALLINDER, G. HULTQUIST, B. TVETEN and E. HÖRNLUND	1267	Hydrogen in chromium: influence on corrosion potential and anodic dissolution in neutral NaCl solution
Y. XINGWEN, C. CHUNAN, Y. ZHIMING, Z. DERUI and Y. ZHONGDA	1283	Study of double layer rare earth metal conversion coating on aluminum alloy LY12
O. KHASELEV, D. WEISS and J. YAHALOM	1295	Structure and composition of anodic films formed on binary Mg-Al alloys in KOH-aluminate solutions under continuous sparking
J. DOBRYSZYCKI and S. BIALLOZOR	1309	On some organic inhibitors of zinc corrosion in alkaline media
Y. S. LIM, H. P. KIM, J. H. HAN, J. S. KIM and H. S. KWON	1321	Influence of laser surface melting on the susceptibility to intergranular corrosion of sensitized Alloy 600
A. MISZCZYK and K. DAROWICKI	1337	Accelerated ageing of organic coating systems by thermal treatment
S. RAJENDRAN, B. V. APPARAO, N. PALANISWAMY, V. PERIASAMY and G. KARTHIKEYAN	1345	Corrosion inhibition by strainless complexes
S. C. KRANC and A. A. SAGÜÉS	1355	Detailed modeling of corrosion macrocells on steel reinforcing in concrete
S. NESIC, M. NORDSVEEN, N. MAXWELL and M. VRHOVAC	1373	Probabilistic modelling of CO <sub>2</sub> corrosion laboratory data using neural networks
H. HABAZAKI, K. SHIMIZU, P. SKELDON, G. E. THOMPSON and G. C. WOOD	1393	The behaviour of iron during anodic oxidation of sputtering- deposited Al-Fe alloys
<b>I</b> Corrosion diary		
<b>III</b> Keywords for <i>Corrosion Science</i>		

**NUMBER 8**

J. S. KIM, E. A. CHO and H. S. KWON	1403	Photoelectrochemical study on the passive film on Fe
X. ZHANG, F. WANG, Y. HE and Y. DU	1417	Study of the inhibition mechanism of imidazoline amide on CO <sub>2</sub> corrosion of Armco iron
G. PATERMARAKIS and K. MOUSSOUTZANIS	1433	Formulation of a criterion predicting the development of uniform regular and non-uniform abnormal porous anodic alumina coatings and revealing the mechanisms of their appearance and progress
C. E. B. MARINO, E. M. DE OLIVEIRA, R. C. ROCHA-FILHO and S. R. BIAGGIO	1465	On the stability of thin-anodic-oxide films of titanium in acid phosphoric media
E. CAUDRON and H. BUSCAIL	1477	Initial stages of oxidation of yttrium-implanted pure iron and various steels at 700°C under low oxygen partial pressure
S. GIDDEY, B. CHERRY, F. LAWSON and M. FORSYTH	1497	Stability of oxide films formed on mild steel in turbulent flow conditions of alkaline solutions at elevated temperatures
C. GARCÍA, F. MARTÍN, P. DE TIEDRA, J. A. HEREDERO and M. L. APARICIO	1519	Effects of prior cold work and sensitization heat treatment on chloride stress corrosion cracking in type 304 stainless steels
Y. NIU, Z. L. ZHAO, F. GESMUNDO and M. AL-OMARY	1541	The air oxidation of two Cu-Ni-Ag alloys at 600-700°C
J. D. RAMSEY, L. XIA, M. W. KENDIG and R. L. MCCREERY	1557	Raman spectroscopic analysis of the speciation of dilute chromate solutions
K. ARAMAKI	1573	The inhibition effects of cation inhibitors on corrosion of zinc in aerated 0.5 M NaCl
D. TANEICHI, R. HANEDA and K. ARAMAKI	1589	A novel modification of an alkanethiol self-assembled mono- layer with alkylisocyanates to prepare protective films against copper corrosion
<b>I</b> Corrosion diary		
<b>V</b> Keywords for <i>Corrosion Science</i>		

**NUMBER 9**

J. P. POPIĆ, M. L. AVRAMOV-IVIĆ and I. D. DOROSLOVACKI	1601	Electrochemical behavior of stainless steel W.Nr. 1.4301 in the malic acid and sulfur dioxide solution
G. GUNASEKARAN, R. NATARAJAN and N. PALANISWAMY	1615	The role of tartrate ions in the phosphonate based inhibitor system
D. ZHANG, L. LI, L. CAO, N. YANG and C. HUANG	1627	Studies of corrosion inhibitors for zinc-manganese batteries: quinoline quaternary ammonium phenolates
L. WANG	1637	Inhibiting effect of 2-mercaptopurimidine on the corrosion of a low carbon steel in phosphoric acid
S. R. ALLAH-KARAM, V. VASANTASREE and M. G. HOC- KING	1645	Electrochemical potential mapping of a rapidly solidified processed light alloy
A. ABALLE, M. BETHENCOURT, F. J. BOTANA, M. J. CANO and M. MARCOS	1657	Localized alkaline corrosion of alloy AA5083 in neutral 3.5% NaCl solution
H. TAMURA, N. ITO, M. KITANO and S. TAKASAKI	1675	A kinetic model of the dissolution of copper(II) oxide in EDTA solutions considering the coupling of metal and oxide ion transfer
P. T. JAKOBSEN and E. MAAHN	1693	Temperature and potential dependence of crevice corrosion of AISI 316 stainless steel
J. FLIS, J. MAŃKOWSKI, T. ZAKROCYMSKI and T. BELL	1711	The formation of phosphate coatings on nitrided stainless steel
T. ISHIKAWA, R. KATOH, A. YASUKAWA, K. KANDORI, T. NAKAYAMA and F. YUSE	1727	Influences of metal ions on the formation of $\beta$ -FeOOH particles
L. LEGRAND, G. SAGON, S. LECOMTE, A. CHAUSSE and R. MESSINA	1739	A Raman and infrared study of a new carbonate green rust obtained by electrochemical way
K. SAITO and J. KUNIYA	1751	Mechanochemical model to predict stress corrosion crack growth of stainless steel in high temperature water
S. HIROMOTO, K. ASAMI, A.-P. TSAI, M. SUMITA and T. HANAWA	1767	Appearance of a negative loop on the polarization curves of $Pd_{78}Si_{16}Cu_{6-x}Cr_x$ amorphous alloys in phosphate buffered saline solution
S.-B. HONG, N. ELIAZ, E. M. SACHS, S. M. ALLEN and R. M. LATANISION	1781	Corrosion behavior of advanced titanium-based alloys made by three-dimensional printing (3DP <sup>TM</sup> ) for biomedical applications
Y. LI	1793	Formation of nano-crystalline corrosion products on Zn-Al alloy coating exposed to seawater
	I	Corrosion diary
	III	Keywords for <i>Corrosion Science</i>

**NUMBER 10**

E. X. SUN and W. B. NOWAK	1801	Electrochemical characteristics of Ti-6Al-4V alloy in 0.2 N NaCl solution I. Tafel slopes in quasi-passive state
W. B. NOWAK and E. X. SUN	1817	Electrochemical characteristics of Ti-6Al-4V alloy in 0.2 N NaCl solution II. Kinetic behaviors and electric field in passive film
T. HONG and W. P. JEPSON	1839	Corrosion inhibitor studies in large flow loop at high temperature and high pressure
F. MONTEVERDE, C. MINGAZZINI, M. GIORGI and A. BELLOSI	1851	Corrosion of silicon nitride in sulphuric acid aqueous solution
C. RAMESH, N. MURUGESAN, A. A. M. PRINCE, S. VELMURUGAN, S. V. NARASIMHAN and V. GANESAN	1865	Application of polymer electrolyte based hydrogen sensor to study corrosion of carbon steel in acid medium
S. C. SHARMA	1877	A study on stress corrosion behavior of Al6061/albite composite in higher temperature acidic medium using autoclave
C.-H. XU, W. GAO, M. HYLAND and H. GONG	1891	Characterisation of high temperature corrosion products on FeAl intermetallics by XPS
Y.-J. TAN, S. BAILEY and B. KINSELLA	1905	Mapping non-uniform corrosion using the wire beam electrode method. I. Multi-phase carbon dioxide corrosion
Y.-J. TAN, S. BAILEY and B. KINSELLA	1919	Mapping non-uniform corrosion using the wire beam electrode method. II. Crevice corrosion and crevice corrosion exemption

Y.-J. TAN, S. BAILEY and B. KINSELLA	1931	Mapping non-uniform corrosion using the wire beam electrode method. III. Water-line corrosion
M. FEMENIA, J. PAN, C. LEYGRAF and P. LUUKKONEN	1939	In situ study of selective dissolution of duplex stainless steel 2205 by electrochemical scanning tunnelling microscopy
C. LIU, Q. BI and A. MATTHEWS	1953	EIS comparison on corrosion performance of PVD TiN and CrN coated mild steel in 0.5 N NaCl aqueous solution
G. F. LI, E. A. CHARLES and J. CONGLETON	1963	Effect of post weld heat treatment on stress corrosion cracking of a low alloy steel to stainless steel transition weld
K. ARAMAKI	1985	Effects of organic inhibitors on corrosion of zinc in an aerated 0.5 M NaCl solution
	I	Corrosion diary
	III	Keywords for <i>Corrosion Science</i>

## NUMBER 11

## Letter

A. NAGIUB and F. MANSFELD

## Papers

J.-G. KIM and Y.-W. KIM

W.-J. CHOU, G.-P. YU and

J.-H. HUANG

S. O. MOUSSA and M. G. HOCKING

S. SAVOYE, L. LEGRAND, G. SAGON, S. LECOMTE, A. CHAUSSÉ, R. MESSINA and P. TOULHOAT

J. LIN, M. ELLAWAY and

R. ADRIEN

P. KALINAUSKAS, I. VALSIŪNAS, M. SAMULEVIČIENĖ and E. JUZELIŪNAS

A. AFSETH, J. H. NORDLIEN, G. M. SCAMANS and K. NISANCIOLU

J. A. LORI and T. HANAWA

D. ÖRNEK, A. JAYARAMAN, T. K. WOOD, Z. SUN, C. H. HSU and F. MANSFELD

H.-P. VOLKLAND, H. HARMS, K. KAUFMANN, O. WANNER and A. J. B. ZEHNDER

A. NAGIUB and F. MANSFELD

A. PAKES, F. ECHEVERRIA, P. SKELDON, G. E. THOMPSON, J. W. FRASER, J. P. McCAFFREY, S. MOISA, M. J. GRAHAM, H. HABAZAKI and K. SHIMIZU T. UJIRO, S. SATOH, R. W. STAEHLE and W. H. SMYRL K. ARAMAKI

2001 Evaluation of microbiologically influenced corrosion inhibition using electrochemical noise analysis

2011 Cathodic protection criteria of thermally insulated pipeline buried in soil

2023 Corrosion behavior of TiN-coated 304 stainless steel

2037 The photo-inhibition of localized corrosion of 304 stainless steel in sodium chloride environment

2049 Experimental investigations on iron corrosion products formed in bicarbonate/carbonate-containing solutions at 90°C

2065 Study of corrosion material accumulated on the inner wall of steel water pipe

2083 Zinc photo-corrosion in neutral solutions

2093 Effect of heat treatment on filiform corrosion of aluminium alloy AA3005

2111 Characterization of adsorption of glycine on gold and titanium electrodes using electrochemical quartz crystal microbalance

2121 Pitting corrosion control using regenerative biofilms on aluminium 2024 in artificial seawater

2135 Repair of damaged vivianite coatings on mild steel using bacteria

2147 Evaluation of corrosion inhibition of brass in chloride media using EIS and ENA

2173 Role of oxygen bubble generation in anodic film growth on InP

2185 Effect of alloying Cu on the corrosion resistance of stainless steels in chloride media

2201 Treatment of zinc surface with cerium(III) nitrate to prevent zinc corrosion in aerated 0.5 M NaCl

I Corrosion diary

III Keywords for *Corrosion Science*

## NUMBER 12

2217 Influence of current density in anodizing of an Al-W alloy

L. IGLESIAS-RUBIANES, P. SKELDON, G. E. THOMPSON, K. SHIMIZU and H. HABAZAKI

M. EL AZHAR, B. MERNARI, M. TRAISNEL, F. BENTISS and M. LAGRENÉE	2229	Corrosion inhibition of mild steel by the new class of inhibitors [2,5-bis( <i>n</i> -pyridyl)-1,3,4-thiadiazoles] in acidic media
N. BABU, R. BALASUBRAMANIAM and A. GHOSH	2239	High-temperature oxidation of Fe <sub>3</sub> Al-based iron aluminides in oxygen
S. NINGSHEN, M. UHLEMANN, F. SCHNEIDER and H. S. KHATAK	2255	Diffusion behaviour of hydrogen in nitrogen containing austenitic alloys
J. CONGLETON, E. A. CHARLES and G. SUI	2265	Review on effect of cyclic loading on environmental assisted cracking of alloy 600 in typical nuclear coolant waters
L. WANG	2281	Evaluation of 2-mercaptobenzimidazole as corrosion inhibitor for mild steel in phosphoric acid
L. W. VASCONCELOS, I. C. P. MARGARIT, O. R. MATTOS, F. L. FRAGATA and A. S. B. SOMBRA	2291	Inhibitory properties of calcium exchanged silica epoxy paint- ings
R. CABRERA-SIERRA, M. MIRANDA-HERNÁNDEZ, E. SOSA, T. OROPEZA and I. GONZÁLEZ	2305	Electrochemical characterization of the different surface states formed in the corrosion of carbon steel in alkaline sour medium
W. C. LUU and J. K. WU	2325	Influence of aluminium content on retarding hydrogen transport in Fe-Al binary alloys
D. A. WORSLEY, D. WILLIAMS and J. S. G. LING	2335	Mechanistic changes in cut-edge corrosion induced by variation of organic coating porosity
Y. LIU, P. SKELDON, G. E. THOMPSON, X. ZHOU, H. HABAZAKI and K. SHIMIZU	2349	Influence of surface treatment on detachment of anodic films from Al-Mg alloys
A. AFSETH, J. H. NORDLIEN, G. M. SCAMANS and K. NISANCIOLU	2359	Influence of heat treatment and surface conditioning on filiform corrosion of aluminium alloys AA3005 and AA5754
I. ODNEVALL WALLINDER and C. LEYGRAF	2379	Seasonal variations in corrosion rate and runoff rate of copper roofs in an urban and a rural atmospheric environment
I		Corrosion diary
III		Index for volume 43, 2001
XXV		Keywords for <i>Corrosion Science</i>

